

Topic: Advanced Organizer
Storyboard number: 07-02-00-000C
Screen type: Content

Layout: 5
Level:

What content does this section cover?

The ISDN Basics section Introduces the following information:

- What purpose ISDN serves in telecommunications
- What forces brought about the need for ISDN
- What standards are and who determines them for ISDN
- What advantages digital telecommunications offer

ICON

Screen graphics for 07-02-00-000C:

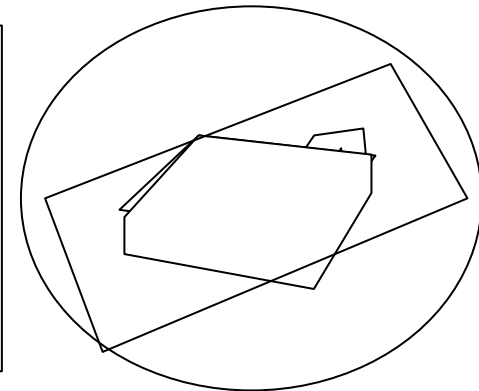
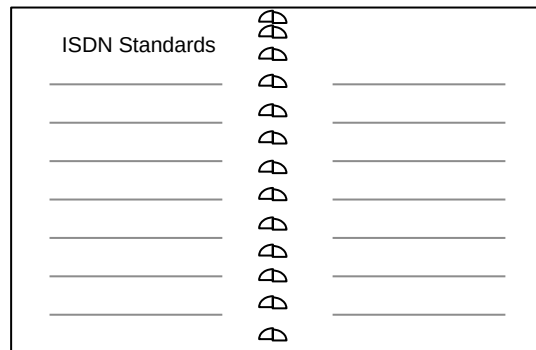
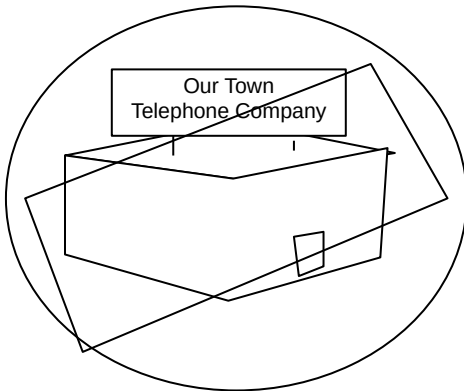
Component	Library	Description/notes	Clickable/ caption

Topic: Telephone Companies
Storyboard number: 07-02-01-005C
Screen type: Content

Layout: 1
Level:

What is a ISDN?

ISDN is not a technology or a piece of equipment. It is a set of **standards** to which this form of digital telecommunications technology and the equipment used to implement it must conform.



Screen graphics for 07-02-01-000C:

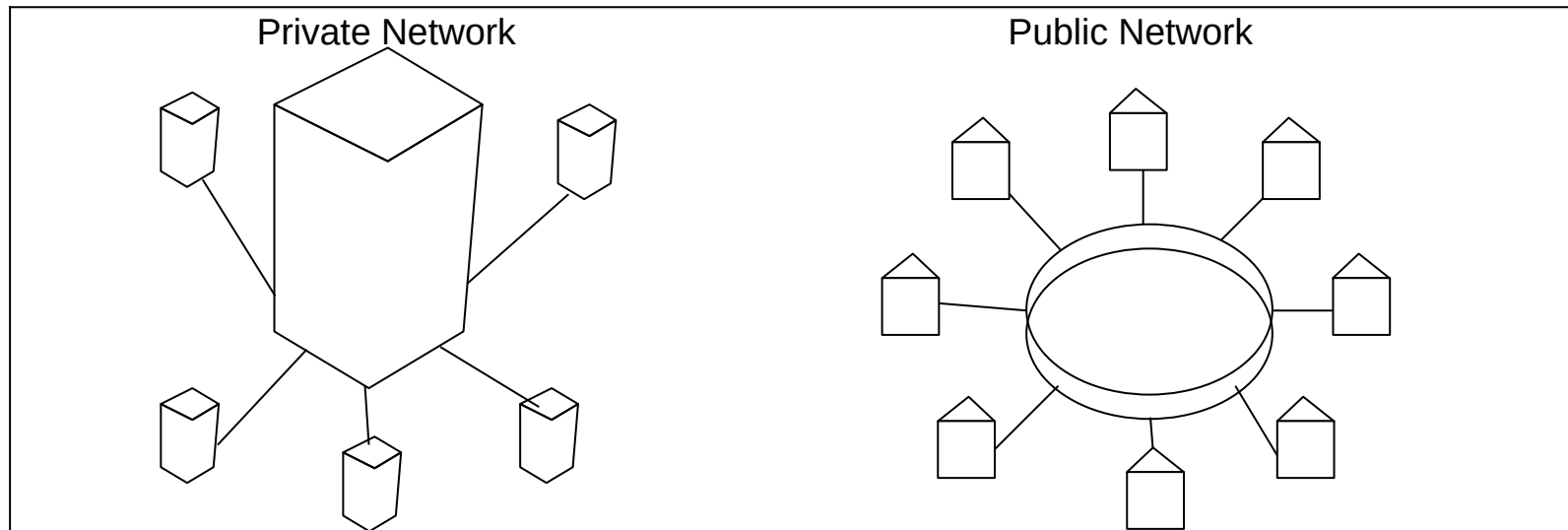
Component	Library	Description/notes	Clickable/ caption
*Telco Switch		Building with sign on top. Put in a circle frame.	
*ISDN Publication		Spiral bound notebook. First page must read "ISDN Standards" Lines underneath are text of manual and on following page is text of manual. This does not have to be readable text. Any graphic item representing text is acceptable.	
*Stamp		Rectangle over top of each graphic is a stamp. Stamp reads "ISDN Approved"	
ISDN Telephone		ISDN telephone in a circle frame.	

Topic: Telephone Companies
Storyboard number: 07-02-01-010C
Screen type: Content

Layout: 1
Level:

What is the goal of ISDN?

There are other types of digital telecommunication which have existed since the need to transport and share digital data first arrived. These digital networks have operated separate from the **PSTN** that we all use to talk to each other.



Screen graphics for 07-02-01-010C:

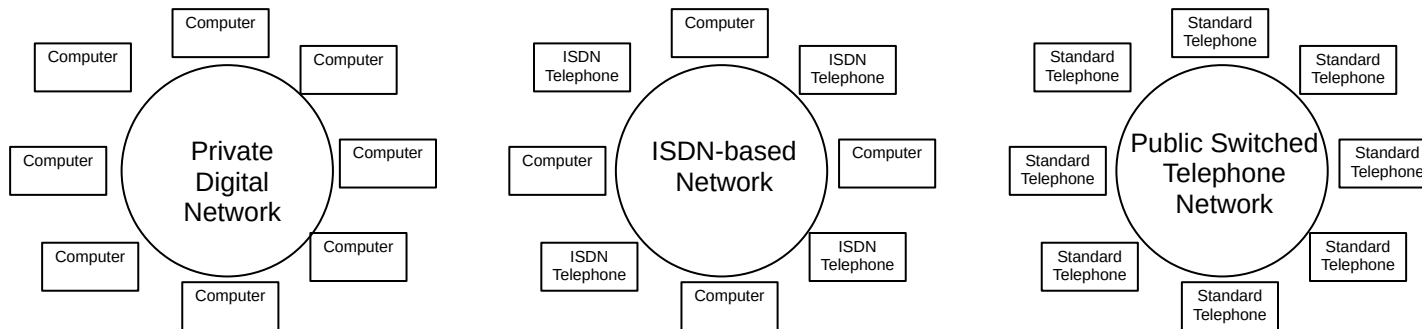
Component	Library	Description/notes	Clickable/ caption
*Business Park (Private Network)		One large building surrounded by smaller buildings. All are connected by phone lines.	
*PSTN		The circle with PSTN in the center is my symbol for the Public Switched Telephone Network. It may not be what we're using throughout the course. Use whatever symbol for the PSTN is already established. Surround the PSTN with suburban looking structures, all connected to the PSTN.	

Topic: Telephone Companies
Storyboard number: 07-02-01-015C
Screen type: Content

Layout: 1
Level:

What is the goal of ISDN?

ISDN replaces the individual private voice and data networks with a single public digital network. ISDN standards ensures equipment compatibility and flexibility of application.



Screen graphics for 07-02-01-015C:

Component	Library	Description/notes	Clickable/ caption
*Private Digital Network		Network is surrounded by computers, all connected to the network. If you have several different types of computers, use them for variety.	
*ISDN-based Network		Network has alternating ISDN telephones and computers connected to it.	
*PSTN		Network has only telephones connected to it. If you have several different types of non-ISDN telephones you can use here, use them for variety.	

Topic: Telephone Companies
Storyboard number: 07-02-01-020E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

ISDN integrates services over a single network. What types of communication do you think can share an ISDN-based digital network?

- Computer data, digital data, and voice data
- Voice, data, and video
- Digital voice only
- Voice and data only

Correct answer: Voice, data, and video

Feedback for 1st incorrect answer:

HINT: Voice and data are two types of communication. There is one more. Please try again.

Feedback for 2nd incorrect answer:

Incorrect. The purpose of ISDN is to integrate voice, data, and video over a single digital network.

Feedback for correct answer:

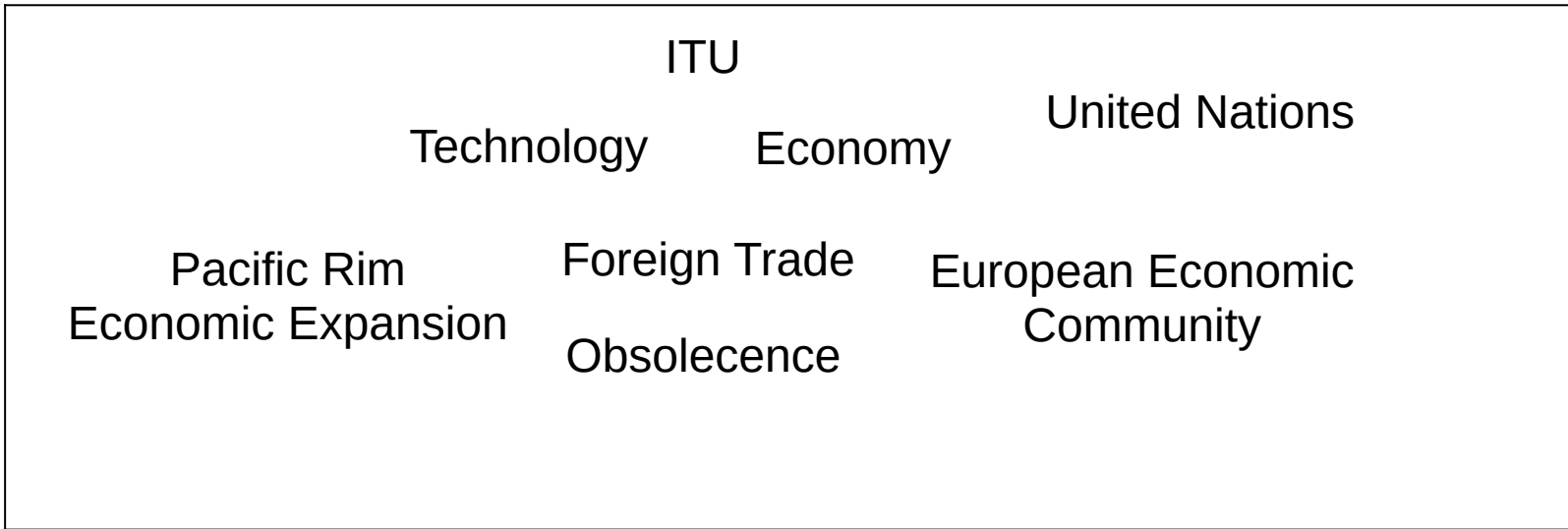
That's right. The purpose of ISDN is to integrate voice, data, and video over a single digital network.

Topic: Telephone Companies
Storyboard number: 07-02-01-025C
Screen type: Content

Layout: 1
Level:

What influenced the development of ISDN?

A variety of forces influenced the development of ISDN. To understand what those forces were and how they influenced ISDN's development, you need to review a bit of history.



Screen graphics for 07-02-01-025C:

Component	Library	Description/notes	Clickable/ caption
*Word Montage		Place words on screen in varying colors and fonts. Words can overlap, be turned to different angles, made transparent.	

Topic: Telephone Companies
Storyboard number: 07-02-01-030E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What does ISDN stand for?

- Integrated Satellite Download Network
- Independent Services Digital Network
- Integrated Services Digital Network
- Interleaving Sources Dynamic Network

Correct answer: Integrated Services Digital Network

Feedback for 1st incorrect answer:

HINT: It describes the type of service and technology used. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, the correct answer is Integrated Services Digital Network.

Feedback for correct answer:

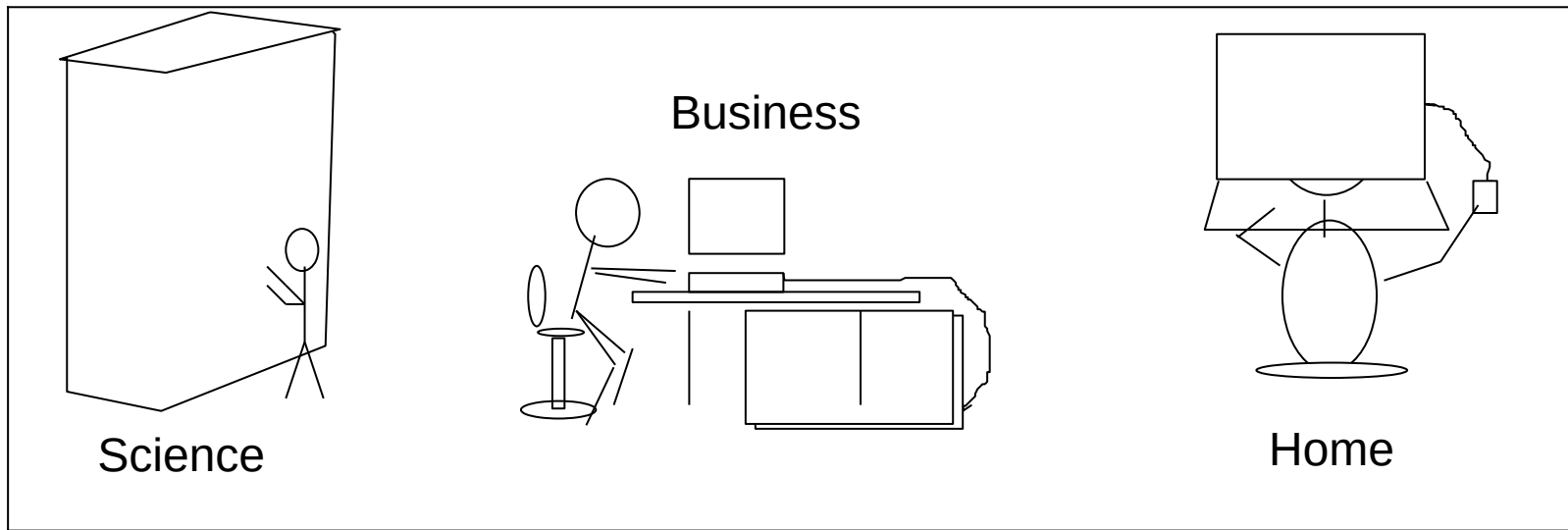
That's right, Integrated Services Digital Network.

Topic: Standards and the ITU
Storyboard number: 07-02-02-000C
Screen type: Content

Layout: 1
Level:

What technology influenced ISDN development?

During the decade of the 1970s, advances in computer technology brought microcomputers out of the science laboratory and into the workplace and, eventually, the home.



Screen graphics for 07-02-02-000C:

Component	Library	Description/notes	Clickable/ caption
Fig. 1 (on left)		Person stands in front of a large computer.	
Fig. 2 (center)		Person works on a computer. Monitor is on the table. Large box on floor next to table is the CPU.	
Fig. 3 (on right)		Person sits in front of a computer at his home. One hand is on the keyboard and one hand is on the mouse.	
*Figures		Figures are new graphic item not requested on baseline graphic request list. These figures are used throughout this section. For the most part, they are shown using computers or telephones. They will be present in Section 4 as well.	

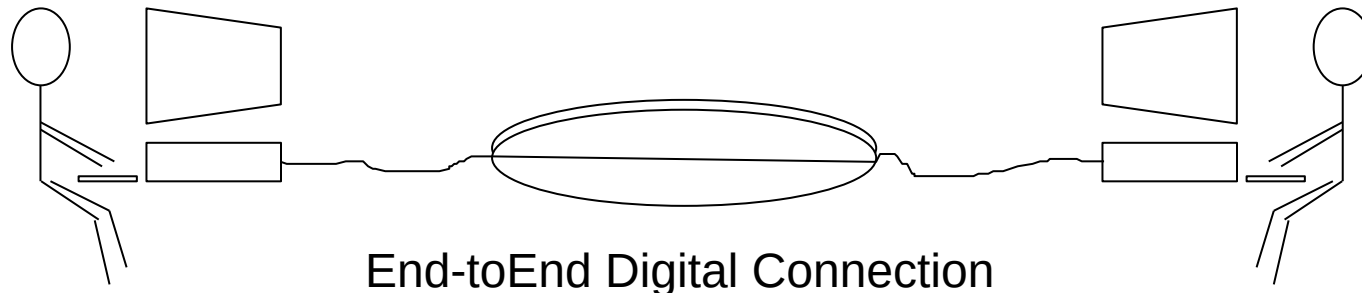
Topic: Standards and the ITU
Storyboard number: 07-02-02-005C
Screen type: Content

Layout: 1
Level:

What technology influenced ISDN development?

Businesses which used computers had a need for digital communication to share information between computers in different locations. From this need, digital telecommunication technology developed.

Business need influenced technology development



Screen graphics for 07-02-02-005C:

Component	Library	Description/notes	Clickable/ caption
*Digital Network		Digital network, as well as analog network and ISDN network, is a new graphic item. A simple symbol to represent the network is all that is needed. If someone wants to figure out an color coding scheme for use in this and other section, and in this and other modules, I would think that an excellent use of one's time.	

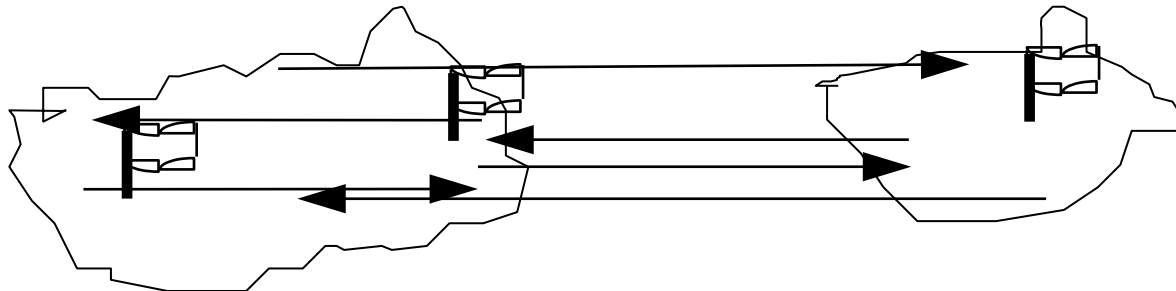
Topic: Standards and the ITU
Storyboard number: 07-02-02-010C
Screen type: Content

Layout: 2
Level:

How did the need for ISDN arise?

The 1970s also saw the emergence of the European Economic Community and a boom in the economies of the Pacific Rim countries. began to take shape.

As the economies of the United States, Europe, and Asian countries became more involved in international trade, a vision of a world economy began to take shape.



Screen graphics for 07-02-02-010C:

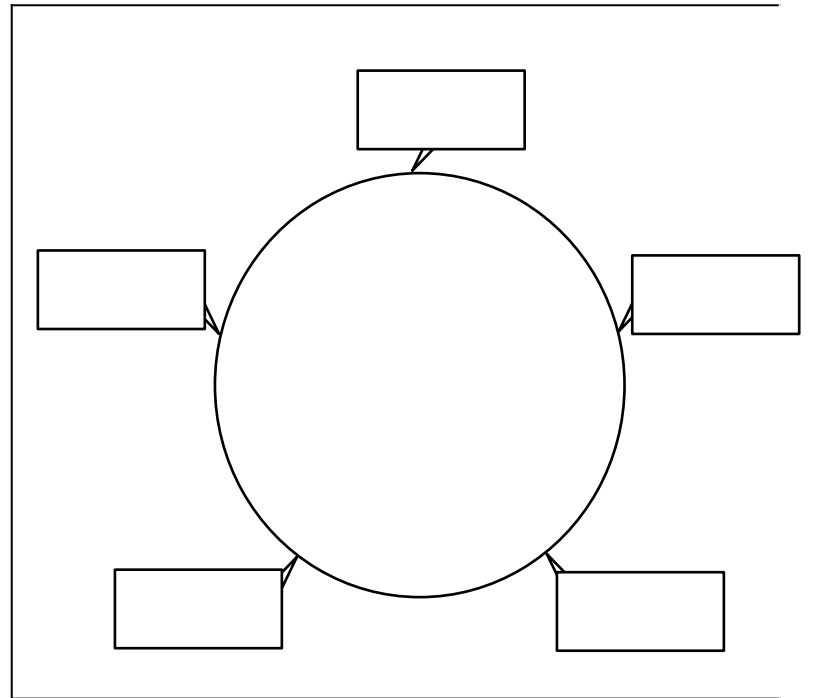
Component	Library	Description/notes	Clickable/ caption
*World Map		Curving map showing Europe (on left), Pacific Rim (center), and the USA (on right). Lines with arrow depict trade routes between the three areas. Each area has a flag. Europe's flag should read "EEC", pacific rim's flag should read "Pacific Rim", USA's flag should read "USA"	

Topic: Standards and the ITU
Storyboard number: 07-02-02-015C
Screen type: Content

Layout: 5
Level:

How did the need for ISDN arise?

Business and government leaders in each country also had another vision. A single world economy would have one a heck of a time trying to communicate over many incompatible and obsolete telephone systems.



Screen graphics for 07-02-02-015C:

Component	Library	Description/notes	Clickable/ caption
*Earth		Earth with cartoon caption text.	

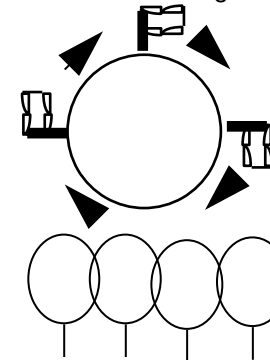
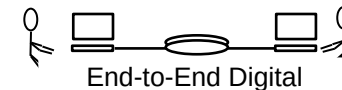
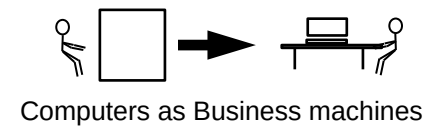
Topic: Standards and the ITU
 Storyboard number: 07-02-02-020C
 Screen type: Content

Layout: 5
 Level:

How did the need for ISDN arise?

Put it all together and it looks like this:

- Microcomputers move from science to business
- Business creates a demand for digital telecommunication
- World trade creates a vision of a world economy
- World business and government leaders recognize a need for a new telecommunication technology which will be compatible world-wide and handle all types of communication needs



Government and Business leaders recognize a need for new technology

Screen graphics for 07-02-02-020C:

Component	Library	Description/notes	Clickable/ caption
*Heads of State (on left)		Group of men and women, all talking to each other, all talking at the same time.	
Computers (right top)		Scientist standing in front of a large computer. Arrow points to business person seated in front of a personal computer.	
More computers (right middle)		Two computers connected to a digital network.	
Earth (right bottom)		Earth with EEC, Pacific Rim, and USA flags. Arrows depict world trade.	

Topic: Standards and the ITU
Storyboard number: 07-02-02-025E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

To create a world-wide digital telecommunications system would require coordinating input from practically every nation. What single entity would be capable of handling such a task?

- The United States Government
- A Coalition of North American **Telcos**
- The United Nations
- American Telephone and Telegraph

Correct answer: The United Nations

Feedback for 1st incorrect answer:

HINT: This entity was formed after World War II to help coordinate multinational efforts. Please try again.

Feedback for 2nd incorrect answer:

Incorrect. The United Nations is the correct answer. A department of the United Nations, the **International Telecommunications Union**, develops international standards for ISDN.

Feedback for correct answer:

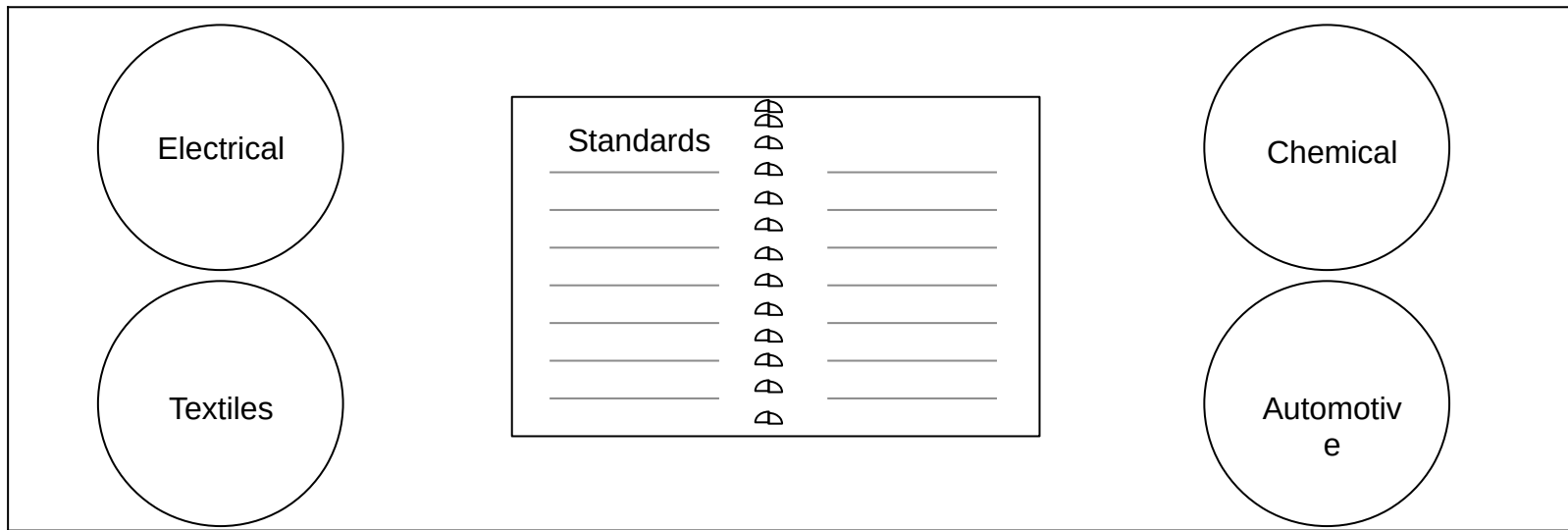
That's right, The United Nations. A department of the United Nations, the **International Telecommunications Union**, develops international standards for ISDN.

Topic: Standards and the ITU
Storyboard number: 07-02-02-030C
Screen type: Content

Layout: 1
Level:

What are ISDN standards?

Standards are a set of rules by which a technology must abide. A manufacturer who designs hardware and software for a technology must follow standards to ensure compatibility with other manufacturers.



Screen graphics for 07-02-02-030C:

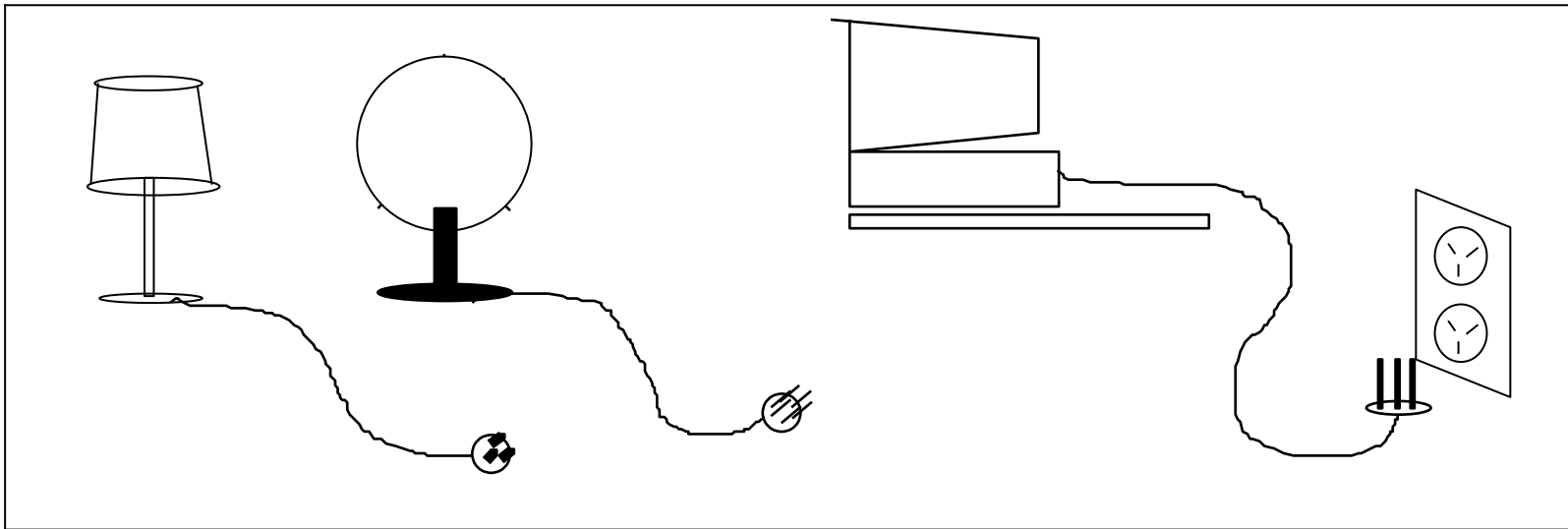
Component	Library	Description/notes	Clickable/ caption
Standards publication		Use the same one from the first frame of the first topic. Change the name to a generic "Standards"	
*Four circles		Each circle is named for a specific type of manufacturing. Find or create some kind of icon that represents each area and fill the circle.	

Topic: Standards and the ITU
Storyboard number: 07-02-02-035C
Screen type: Content

Layout: 1
Level:

What are ISDN standards?

What would it be like if there was not a standard for electrical plugs in the United States?



Screen graphics for 07-02-02-035C:

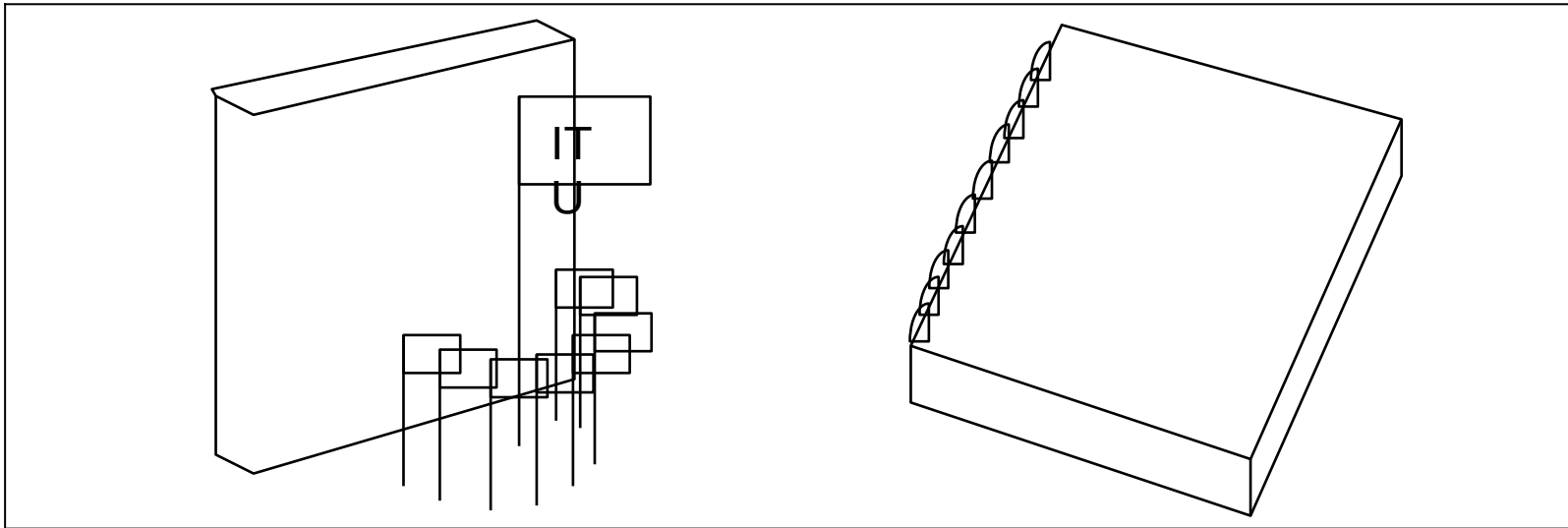
Component	Library	Description/notes	Clickable/ caption
<p>*Lamp *Fan Computer *Wall Socket</p>		<p>These are all generic items with one exception. The plugs on each of these items needs to look like something from another planet. Well, not another planet but at least another country. Be creative and have some fun with it. The wall socket cannot have a shape that might be construed as fitting any of the plugs shown.</p>	
		<p><i>The plugs were requested earlier. They need to be connected to real objects.</i></p>	

Topic: Standards and the ITU
Storyboard number: 07-02-02-040C
Screen type: Content

Layout: 1
Level:

Who determines ISDN standards?

During the 1970s, Asian, European, and American organizations requested that the **ITU** develop standards for the integration of digital voice, data and video communications. The first **standards** document for ISDN was published in 1980.



Screen graphics for 07-02-02-040C:

Component	Library	Description/notes	Clickable/ caption
United Nations Building		United Nations building with a semi-circle of flag poles and international flags in front.	
*ISDN Publication		Publication covers has “ISDN Standards” at top of cover. At bottom of cover, text reads, “First Edition”	

Topic: Standards and the ITU
Storyboard number: 07-02-02-045E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What do you think ISDN standards are?

- Suggestions for manufactures on how to develop hardware and software
- A binding contract between countries to implement the exact same telephone system
- A set of rules that ensure the compatibility of hardware and software manufactured for this digital network technology
- A United Nation's mandate over manufacturers of digital technology hardware and software

Correct answer: A set of rules that ensure the compatibility of hardware and software manufactured for this digital network technology

Feedback for 1st incorrect answer:

HINT: ISDN standards are voluntary. Please try again.

Feedback for 2nd incorrect answer:

Incorrect. ISDN standards are a set of rules that ensure the compatibility of hardware and software manufactured for this digital network technology.

Feedback for correct answer:

That's right. ISDN standards are a set of rules that ensure the compatibility of hardware and software manufactured for this digital network technology.

Topic: Standards and the ITU
Storyboard number: 07-02-02-050C
Screen type: Content

Layout: 1
Level:

Who determines ISDN standards?

These standards are voluntary, but to encourage compliance the **ITU** receives input from standards-making bodies in all countries. In the United States, the standards-making bodies which provide input to the ITU are:

ANSI

IEEE

Bellcore

Screen graphics for 07-02-02-050C:

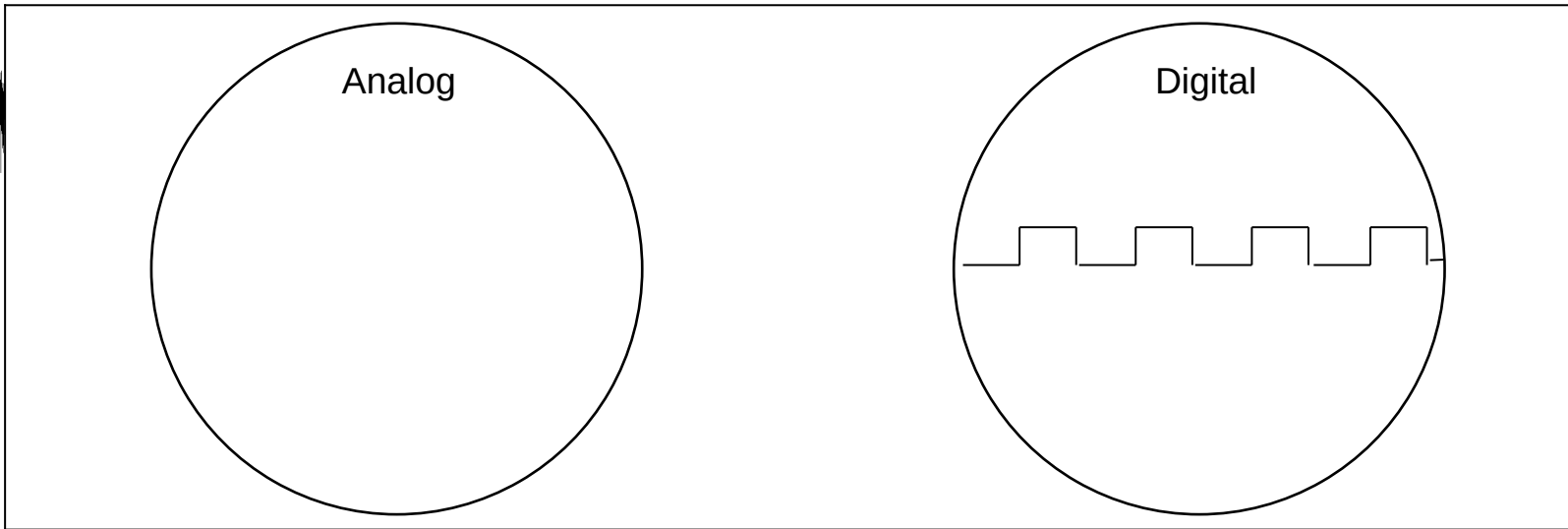
Component	Library	Description/notes	Clickable/ caption
Symbols		Building with flag in front. Flags read individually, IEEE, ANSI and BellCore.	All three are hot graphics.

Topic: Standards and the ITU
Storyboard number: 07-02-02-055C
Screen type: Content

Layout: 1
Level:

What are analog and digital signals?

To understand why businesses and governments world-wide sought after a digital solution for integrating voice, data and video communications, you need to know something about the nature of **digital** and **analog** signals.



Screen graphics for 07-02-02-055C:

Component	Library	Description/notes	Clickable/ caption
*Analog and Digital Signals		These graphics resemble looking at the screen of an oscilloscope.	

Topic: Standards and the ITU
Storyboard number: 07-02-02-060E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What new technology influenced the need for digital communication?

- Fax Machines
- Video Conferencing
- Computers
- Modems

Correct answer: Computers

Feedback for 1st incorrect answer:

HINT: Science used these devices before business. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, the correct answer is computers. Advances in computer technology was one of the influences on the need for digital communication.

Feedback for correct answer:

That's right. Advances in computer technology was one of the influences on the need for digital communication.

Topic: Standards and the ITU
Storyboard number: 07-02-02-065E
Screen type: Exercise

Layout: 5
Level:

MasteryPOINT

Click on the correct answer.

ISDN standards ensure compatibility among the many manufacturers of digital telecommunication equipment who will design the hardware and software for this technology.

- True
- False

Correct answer: True

Feedback for incorrect answer:

Incorrect, the statement is true.

Feedback for correct answer:

That's right.

Topic: Standards and the ITU
Storyboard number: 07-02-02-070E
Screen type: Exercise

Layout: 3
Level:

MasteryPOINT

Click on the correct answer.

What standards-making body provides input to the ITU for the United States?

- 1 Graphic (BellCore)
- 2 Graphic (ANSI)
- 3 Graphic (IEEE)

Correct answer: ANSI

Feedback for 1st incorrect answer:

HINT: This body is also responsible for National ISDN Standards. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, the correct answer is ANSI - American National Standards Institute.

Feedback for correct answer:

That's right. ANSI - American National Standards Institute.

Screen graphics:

Component	Library	Description/notes	Clickable/ caption
ANSI		Symbol from frame 07-02-02-050C	
IEEE		Symbol from frame 07-02-02-050C	
BellCore		Symbol from frame 07-02-02-050C	

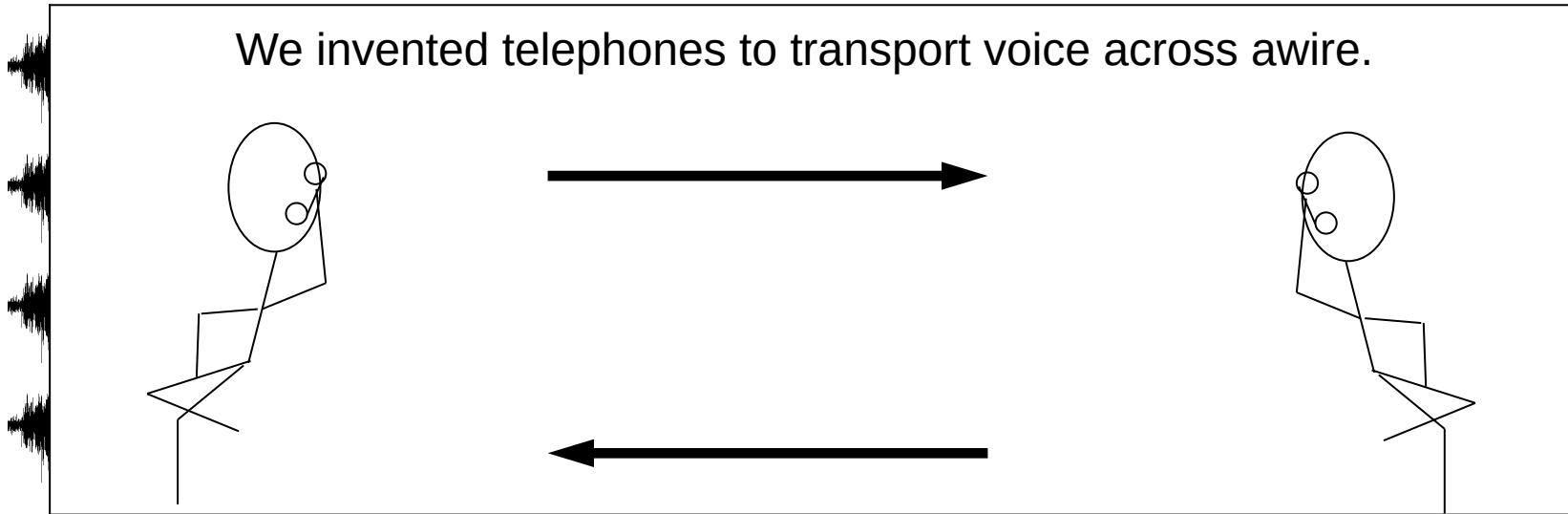
Topic: Analog vs. Digital
Storyboard number: 07-02-03-000C
Screen type: Content

Layout: 1
Level:

Why have we used analog technology?

When it was first invented, the sole purpose of a telephone was to transport a conversation across a wire. Since a person's voice is **analog**, an analog solution was the best solution for that purpose.

We invented telephones to transport voice across a wire.



Screen graphics for 07-02-03-000C:

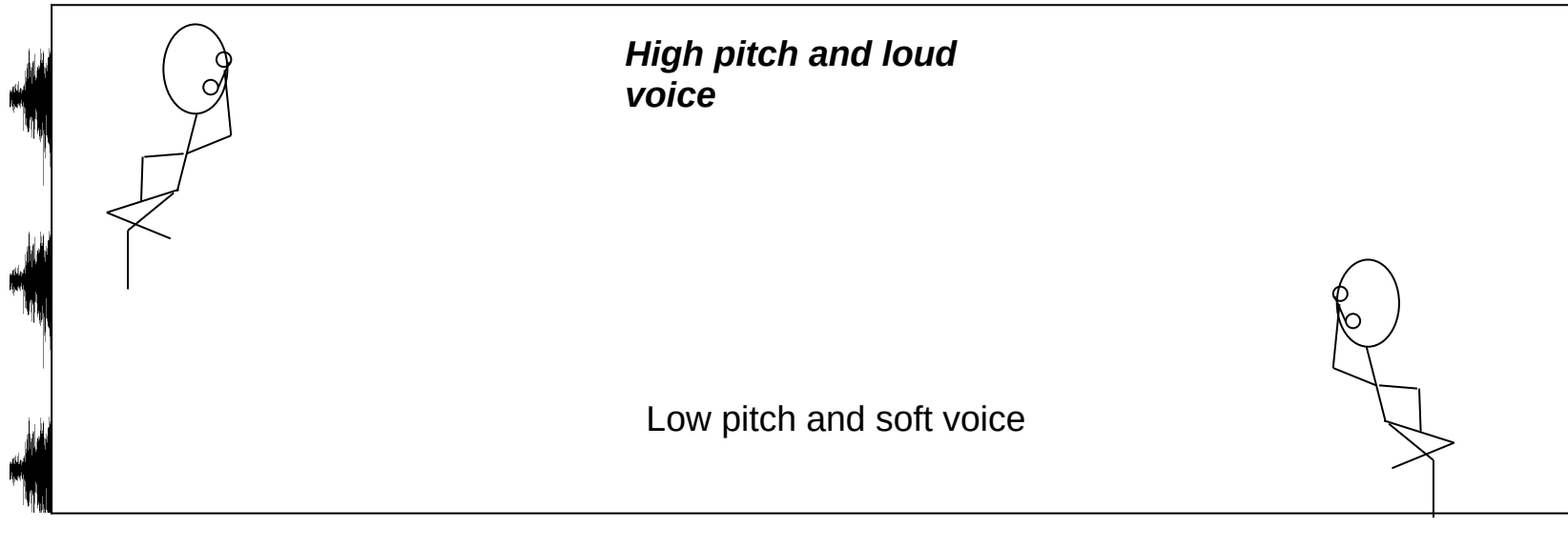
Component	Library	Description/notes	Clickable/ caption
Analog signals		Show these as shown on the storyboard. I took these from an audio program. This is what an analog signal looks like.	

Topic: Analog vs. Digital
Storyboard number: 07-02-03-005C
Screen type: Content

Layout: 1
Level:

What is an analog signal?

The voice is a continuously fluctuating set of physical variables. These physical variables include pitch and volume.



Screen graphics for 07-02-03-005C:

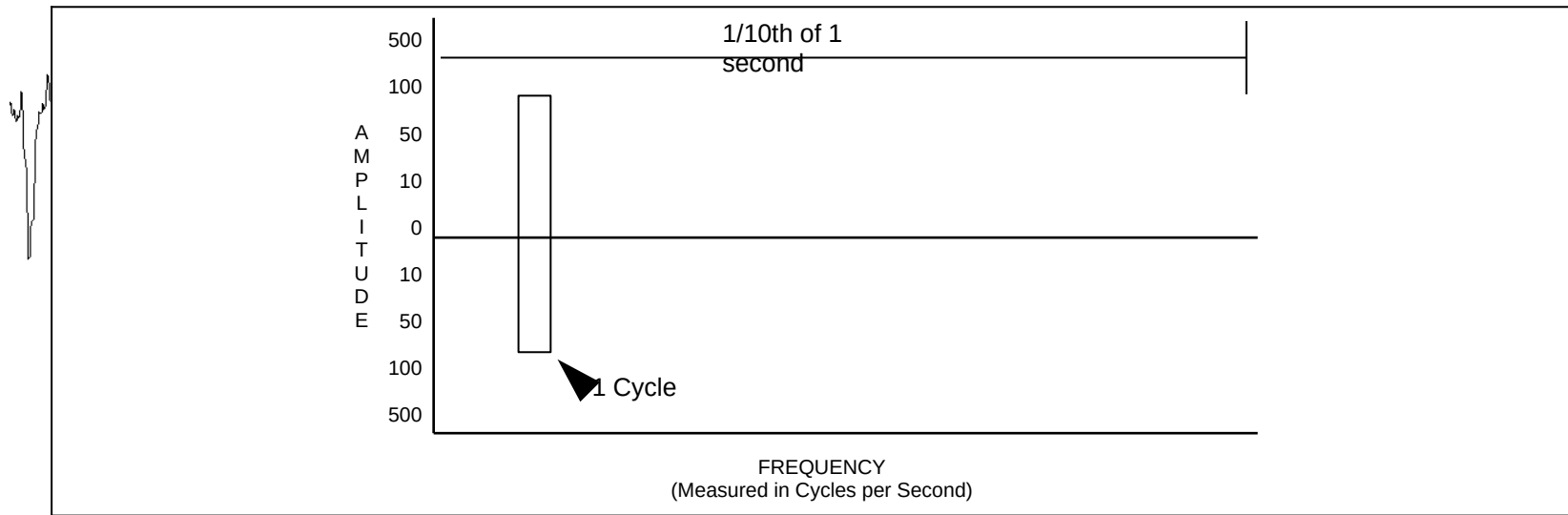
Component	Library	Description/notes	Clickable/ caption

Topic: Analog vs. Digital
 Storyboard number: 07-02-03-010C
 Screen type: Content

Layout: 1
 Level:

What is an analog signal?

As a voice fluctuates in pitch and volume, the **analog** signal represents it as electrical voltage fluctuations of **frequency** and **amplitude**.



Screen graphics for 07-02-03-010C:

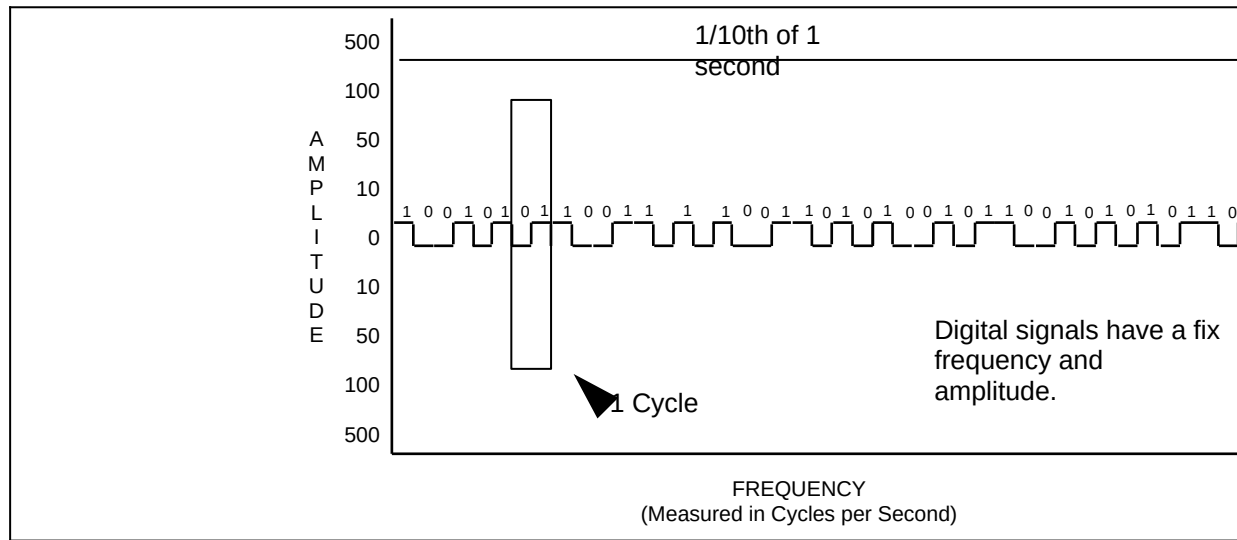
Component	Library	Description/notes	Clickable/ caption
*Graph		Create exactly as shown.	

Topic: Analog vs. Digital
 Storyboard number: 07-02-03-015C
 Screen type: Content

Layout: 1
 Level:

What is a digital signal?

When a person speaks into an ISDN-based digital device, the **CPE** translates the analog voice into a **digital** signal. A digital signal represents the physical variables of a voice as **binary** numbers.



Screen graphics for 07-02-03-015C:

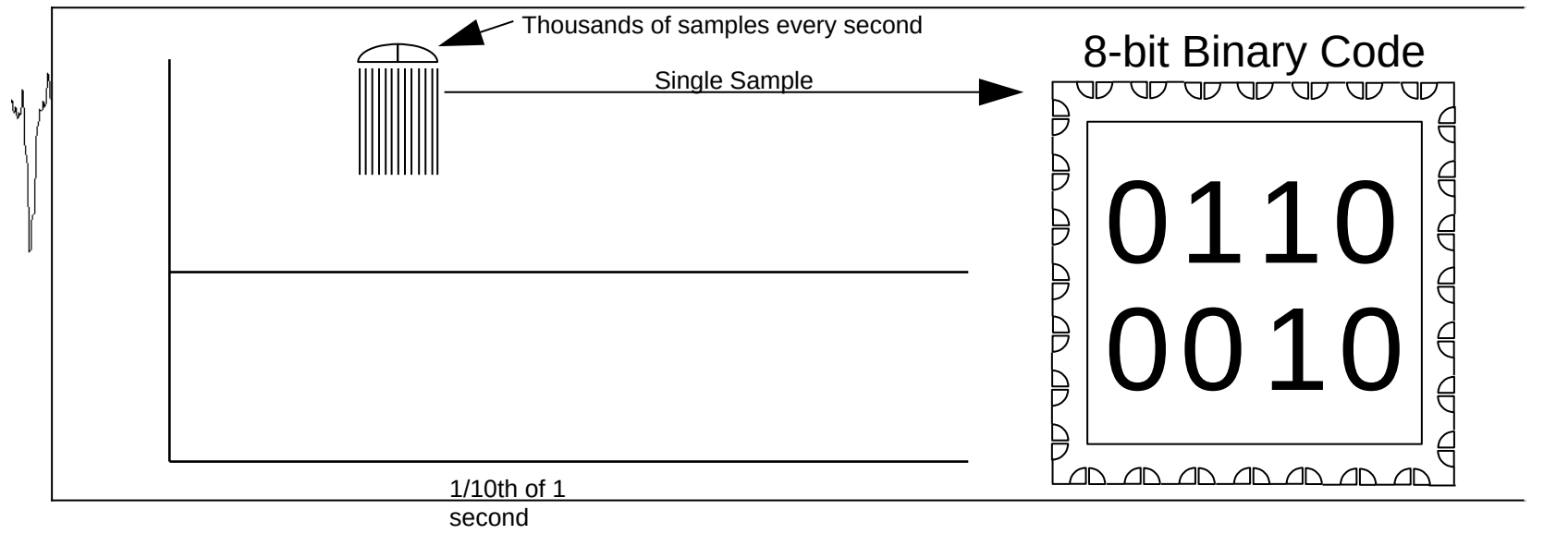
Component	Library	Description/notes	Clickable/ caption
*Graph		Create exactly as shown.	

Topic: Analog vs. Digital
 Storyboard number: 07-02-03-020C
 Screen type: Content

Layout: 1
 Level:

How is an analog signal translated to digital?

Digital devices translate by **sampling** an analog signal thousands of time each second. Each sample is like a snap-shot of the frequency and amplitude of the signal at a point in time.



Screen graphics for 07-02-03-020C:

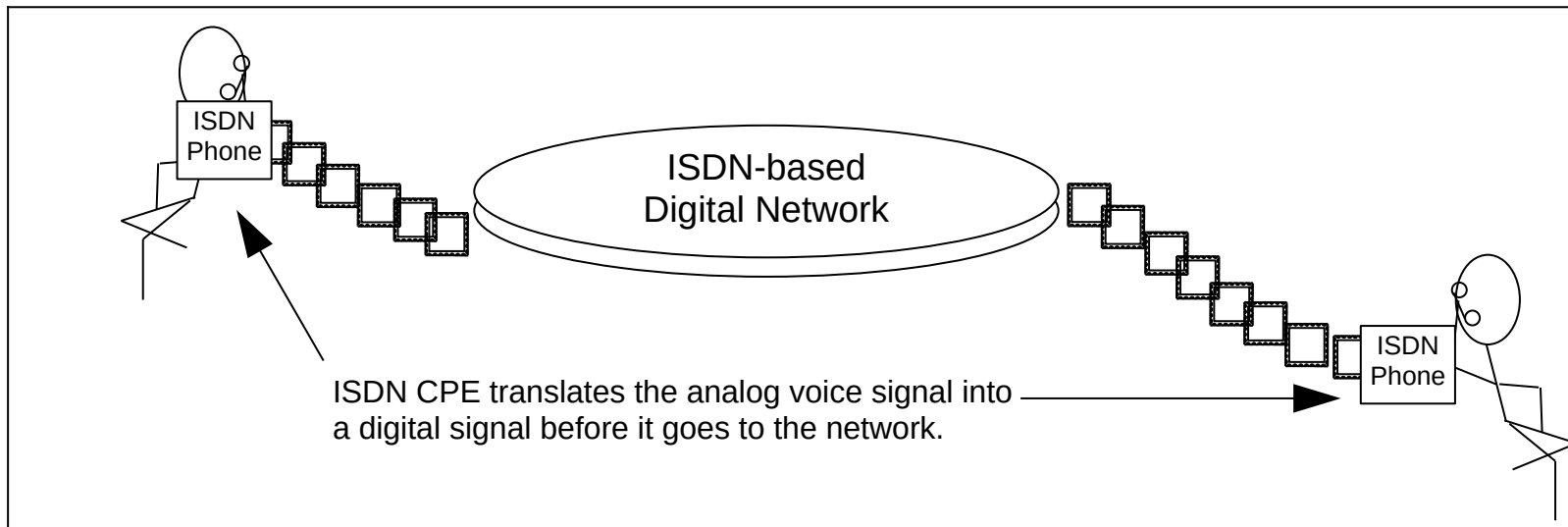
Component	Library	Description/notes	Clickable/ caption
*Graph		Create exactly as shown.	
*Snap-shot		A photograph with the 8-bit binary code on it.	

Topic: Analog vs. Digital
Storyboard number: 07-02-03-025C
Screen type: Content

Layout: 1
Level:

What happens to a voice over an digital network?

The digital code travels through the network and is translated back into an analog signal at the receiving end making an exact recreation of the speaker's voice.



Screen graphics for 07-02-03-025C:

Component	Library	Description/notes	Clickable/ caption
*Digital Signal		Use the photo shape for the digital signal. They don't need to show the 8-bit binary code as shown previously. They're too small for that.	

Topic: Analog vs. Digital
Storyboard number: 07-02-03-030E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What are the components of a digital signal?

- An on state and an off state
- The numbers 1 and 2
- The numbers 0 and 2
- The numbers 0 through 10

Correct answer: An on state and an off state

Feedback for 1st incorrect answer:

HINT: Binary components can be expressed as numbers or as states. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, The components of a digital signal are called on or off states. They can also be referred to as binary numbers, 1 or 0.

Feedback for correct answer:

That's right. The components of a digital signal are called on or off states. They can also be referred to as binary numbers, 1 or 0.

Topic: Analog vs. Digital
Storyboard number: 07-02-03-035C
Screen type: Content

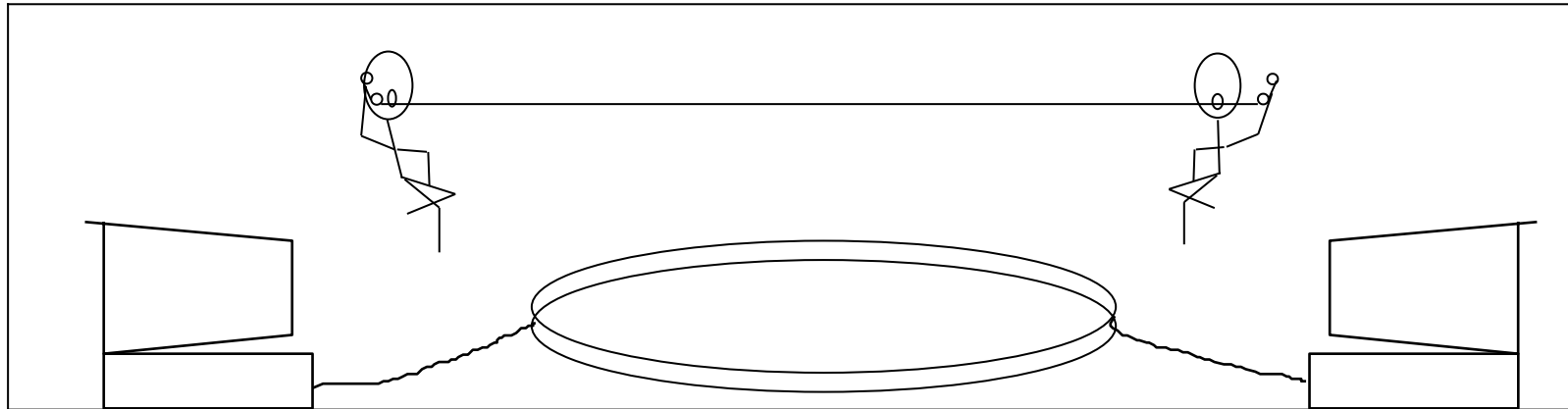
Layout: 2
Level:

What makes a digital signal more efficient?

Transporting a digital signal over a digital network results in:

- Greater efficiency in switching and transmission

- Better overall signal quality
- Signal accuracy through error correction



Screen graphics for 07-02-03-035C:

Component	Library	Description/notes	Clickable/ caption
*Figures		Fig. 1 (on left) speaks loudly into the phone. Figure 2 (on right) holds phone away from ear. Figure one is speaking so loud it hurts the ear to hold the handset up to one's ear. This depicts better overall signal quality.	

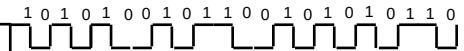
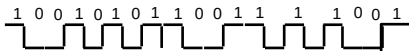
Topic: Analog vs. Digital
Storyboard number: 07-02-03-040C
Screen type: Content

Layout: 1
Level:

What makes a digital signal more efficient?

Digital signals have only two variables for the switching and transmission equipment to work with as opposed to the continuously changing and large number of variables present in an analog signal.

Digital signals have 2 variables for equipment to handle, 0 and 1.



Analog signals have many more variables for equipment to handle.

Screen graphics for 07-02-03-040C:

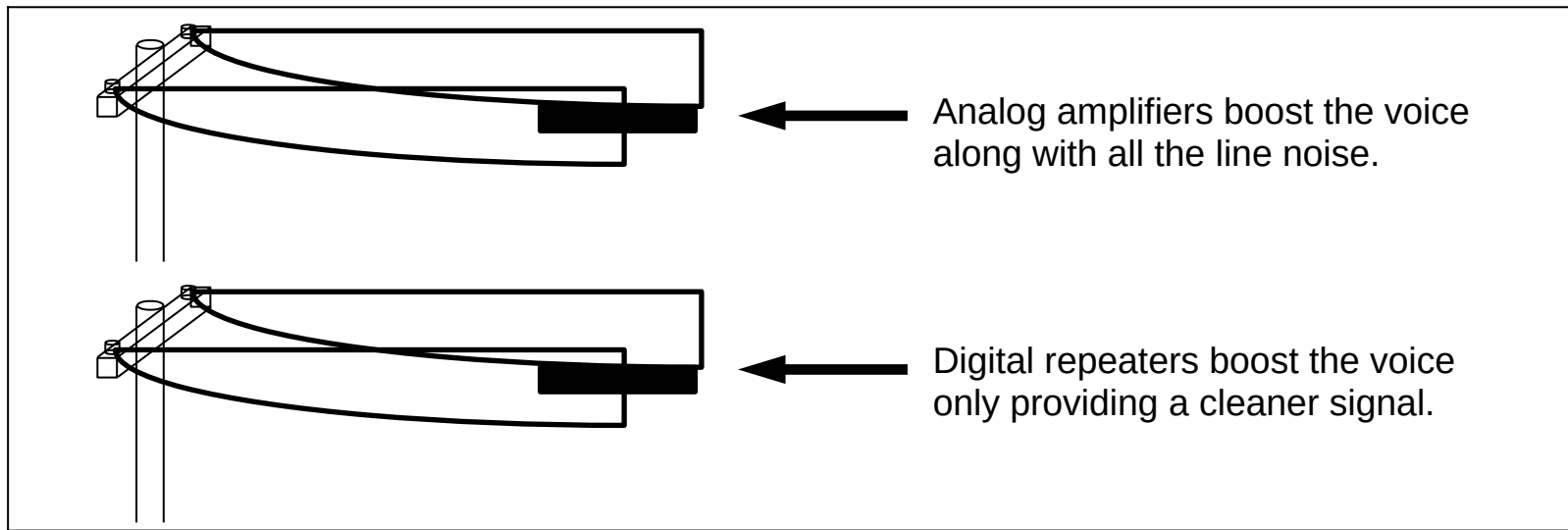
Component	Library	Description/notes	Clickable/ caption
*Switching and Transmission board		This is a green, printed circuit board. There are metal flanges on the ends. The knobs on each end are cut-away cables.	

Topic: Analog vs. Digital
Storyboard number: 07-02-03-045C
Screen type: Content

Layout: 1
Level:

How does a digital signal compare to an analog signal?

Analog signals rely on amplifiers to maintain a signal's strength over long distances. When the signal is amplified, all the line noise is amplified also. In digital networks, repeaters reconstruct just the signal, filtering out the noise and resulting in a clean reproduction of the speaker's voice.



Screen graphics for 07-02-03-045C:

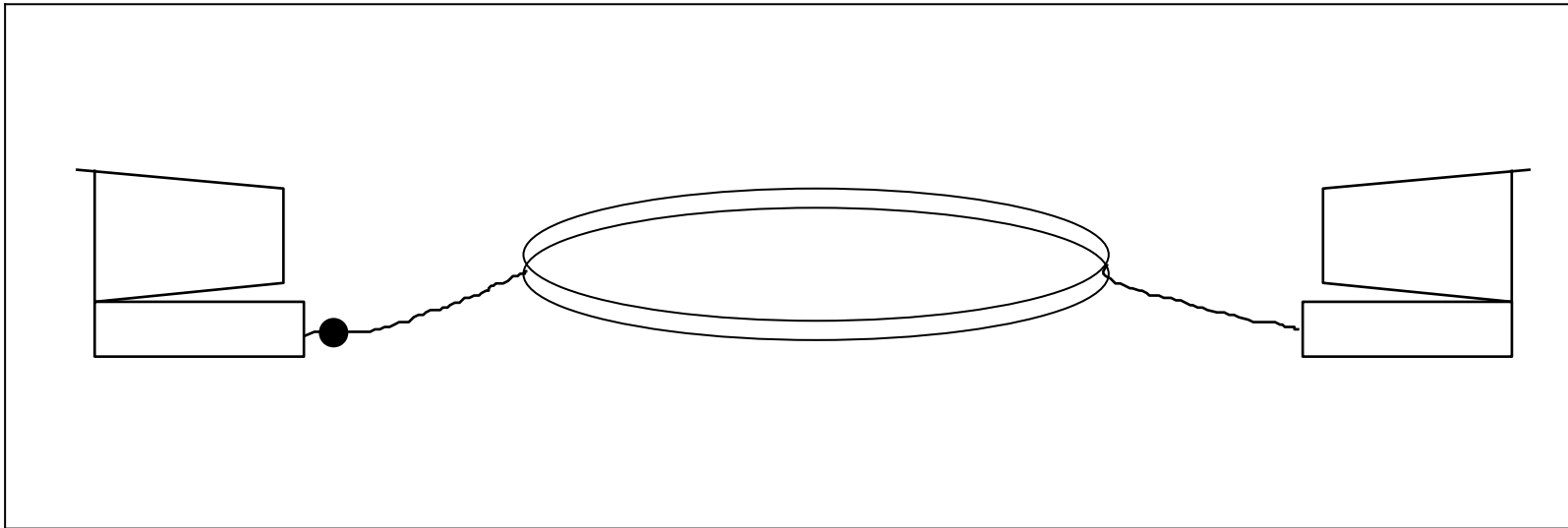
Component	Library	Description/notes	Clickable/ caption

Topic: Analog vs. Digital
Storyboard number: 07-02-03-050C
Screen type: Content

Layout: 1
Level:

What makes a digital signal more accurate?

The efficiency of digital signals supports error correction. Since digital transmission is more accurate, there are fewer retransmissions required because of network errors. This process happens almost instantaneously.



Screen graphics for 07-02-03-050C:

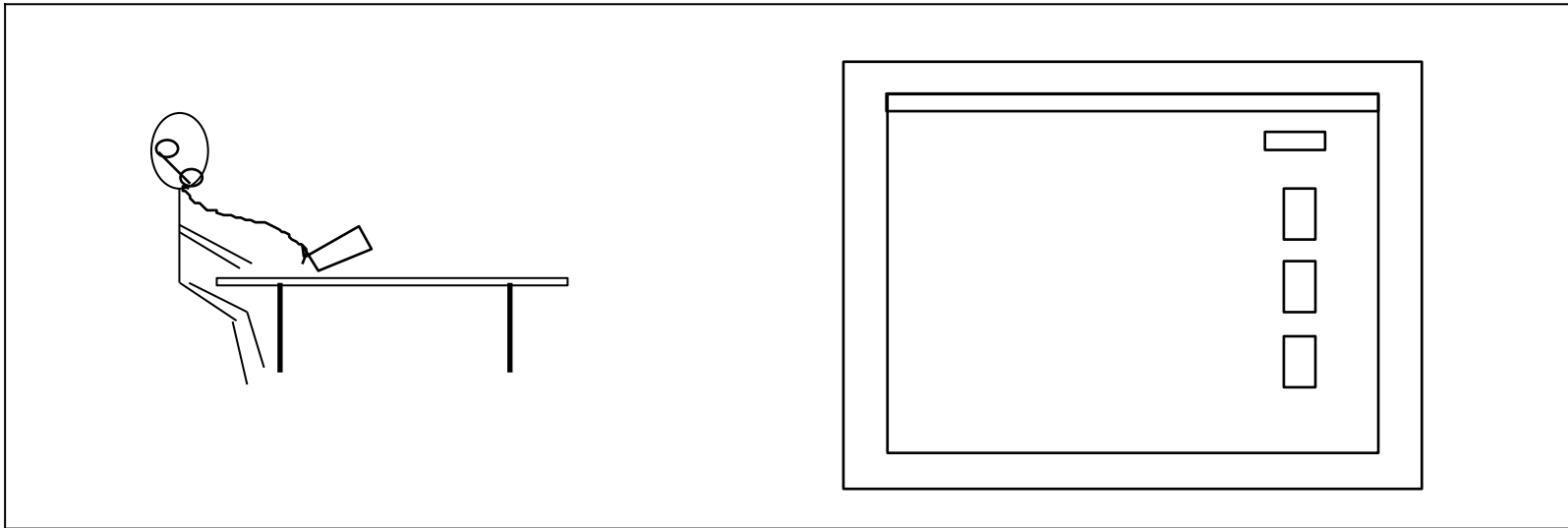
Component	Library	Description/notes	Clickable/ caption
Digital Signal		<p>Dot represents a digital signal. Signal passes out of computer on left and into the digital network. Signal is green. Signal passes out of right side of digital network, signal is red. Signal moves to computer on right then back to network. The signal move back and forth three times. On third time, signal changes back to green and move from digital network into the computer on the right.</p> <p>The signal get corrupted at the network. The computer rejects it and sends it back to the network. This rejection is repeated until the signal is corrected.</p>	Animation

Topic: Analog vs. Digital
Storyboard number: 07-02-03-055C
Screen type: Content

Layout: 1
Level:

How does a digital network effect data communication?

All of these advantages brought by digital telecommunications make for clear voice communication. Data communication gains the most benefit from an end-to-end digital connection.



Screen graphics for 07-02-03-055C:

Component	Library	Description/notes	Clickable/ caption
Figure (on right)		Person sitting in a chair at a table on an ISDN telephone.	
*Monitor (on left)		Computer monitor. Create some sort of “desk top” visual to put on screen.	

Topic: Analog vs. Digital
Storyboard number: 07-02-03-060E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

Why is digital telephone communication more efficient than analog telephone communication?

- A digital signal travels over a fiber-optic line and an analog signal travels over copper wire
- Digital signals offer less resistance than analog signals as they pass through a copper wire.
- A digital signal has fewer variables for the equipment used to switch and transmit the signal to handle
- A digital signal doesn't need to pass through switching and transmitting equipment as an analog signal does

Correct answer: A digital signal has fewer variables for the equipment used to switch and transmit the signal to handle

Feedback for 1st incorrect answer:

HINT: An analog signal is complex in that it has a large number of variables. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, A digital signal has fewer variables for the equipment used to switch and transmit the signal to handle.

Feedback for correct answer:

That's right. A digital signal has fewer variables for the equipment used to switch and transmit the signal to handle.

Topic: Analog vs. Digital
Storyboard number: 07-02-03-065E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

Over an ISDN-based voice connection, where does analog to digital translation occur?

- At the modem
- At the switch
- At the CPE
- Translation is not necessary

Correct answer: At the CPE

Feedback for 1st incorrect answer:

HINT: Translation occurs before the signal gets to the network. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, the correct answer is at the CPE. Digital devices used for ISDN translate the speaker's voice into a digital signal.

Feedback for correct answer:

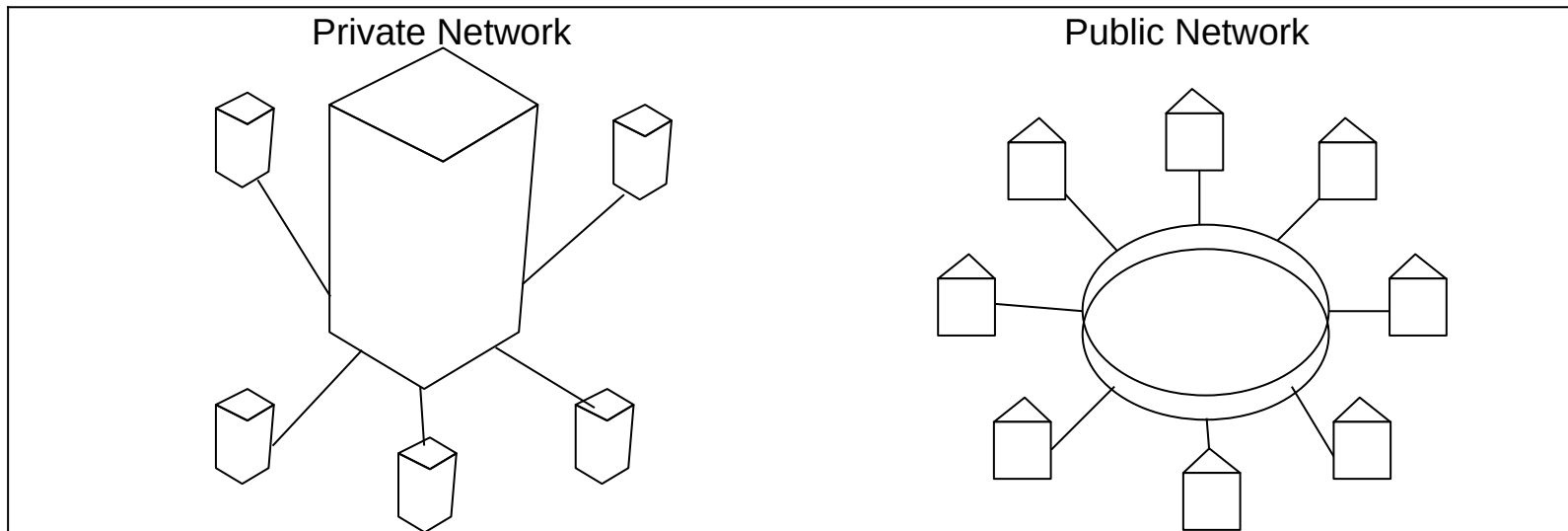
That's right. Digital devices used for ISDN translate the speaker's voice into a digital signal.

Topic: Digital Communication
Storyboard number: 07-02-04-000C
Screen type: Content

Layout: 1
Level:

Who uses data communication?

At one time, only large businesses used computers and had a need for data transmission. They could afford to maintain separate and private analog and digital networks for their voice and data communication needs.



Screen graphics for 07-02-04-000C:

Component	Library	Description/notes	Clickable/ caption
Private Network		Same graphic as on second screen in first topic.	
*PSTN		Similar to the graphic on second screen in first topic. Make structures connected to the PSTN a diverse group of homes, small businesses. strip malls, gas stations, etc.	

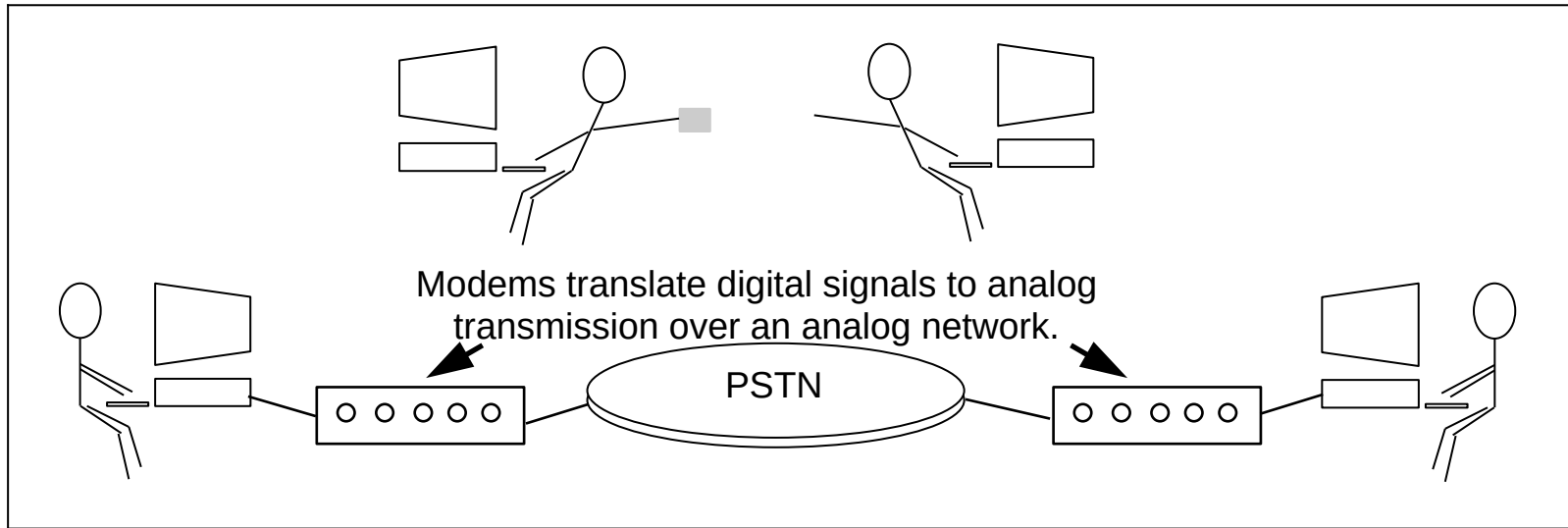
Topic: Digital Communication
Storyboard number: 07-02-04-005C
Screen type: Content

Layout: 1
Level:

How has digital data been transferred until now?

Small businesses and individuals had only two options for computer data transfer:

- Copy the data to a disk and carry it to the other computer
- Use a modem and transfer the data over the PSTN to the other computer



Screen graphics for 07-02-04-005C:

Component	Library	Description/notes	Clickable/ caption
Modems		Modem size is exaggerated. Front panel of modem faces front and shows red lights.	

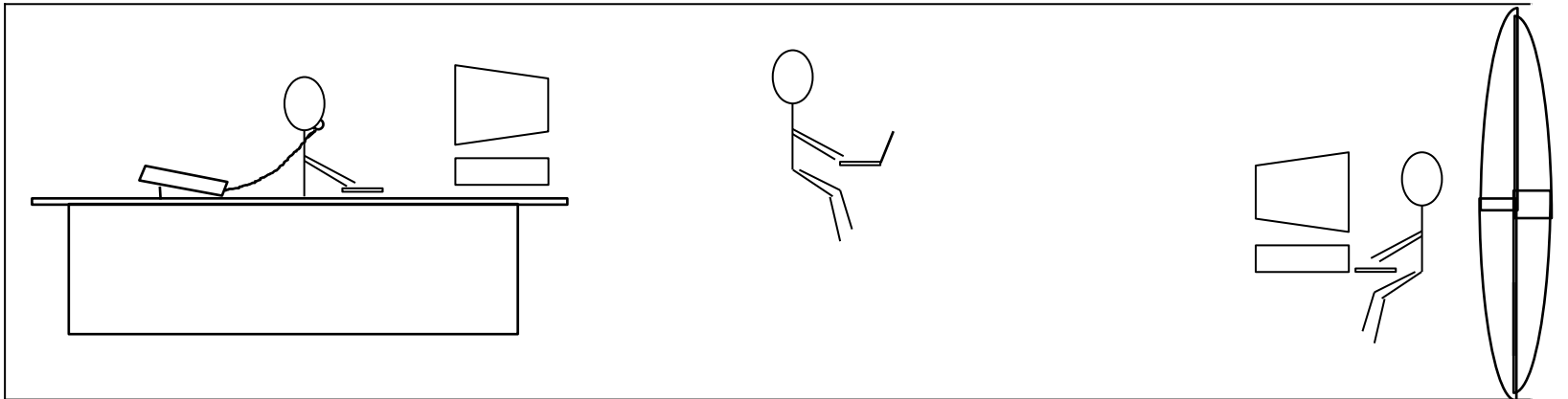
Topic: Digital Communication
Storyboard number: 07-02-04-010C
Screen type: Content

Layout: 2
Level:

Why should the world switch to digital telecommunication?

Today, computers are in every business, home, and briefcase. Data communication has nearly become the primary use of the PSTN and is a daily necessity for almost everyone.

Transferring data over an analog line is slow and inefficient compared to a digital line, and carrying large amounts of computer data on disks is not always feasible.



Screen graphics for 07-02-04-010C:

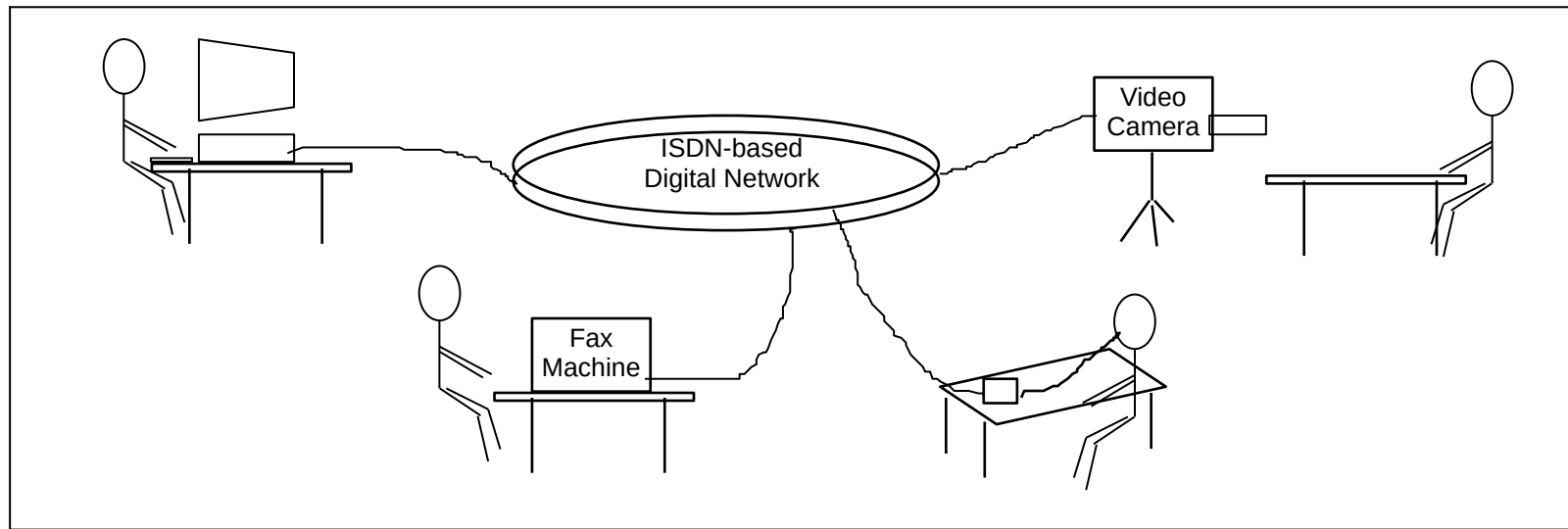
Component	Library	Description/notes	Clickable/ caption
Fig. 1 (bottom left)		Person behind the counter of a small business, on the phone and using the computer at the same time.	
Fig. 2 (top right)		Person working on *a laptop computer.	
Fig. 3 (bottom right)		Person at home surfing the web. *Surfboard stands behind him/her.	

Topic: Digital Communication
Storyboard number: 07-02-04-015C
Screen type: Content

Layout: 1
Level:

Why should the world switch to digital telecommunication?

When the telephone needed only to carry an analog voice across a wire, an analog solution was the answer. ISDN addresses this changing need in telecommunication, providing a single, flexible solution to voice, data and video communications needs.



Screen graphics for 07-02-04-015C:

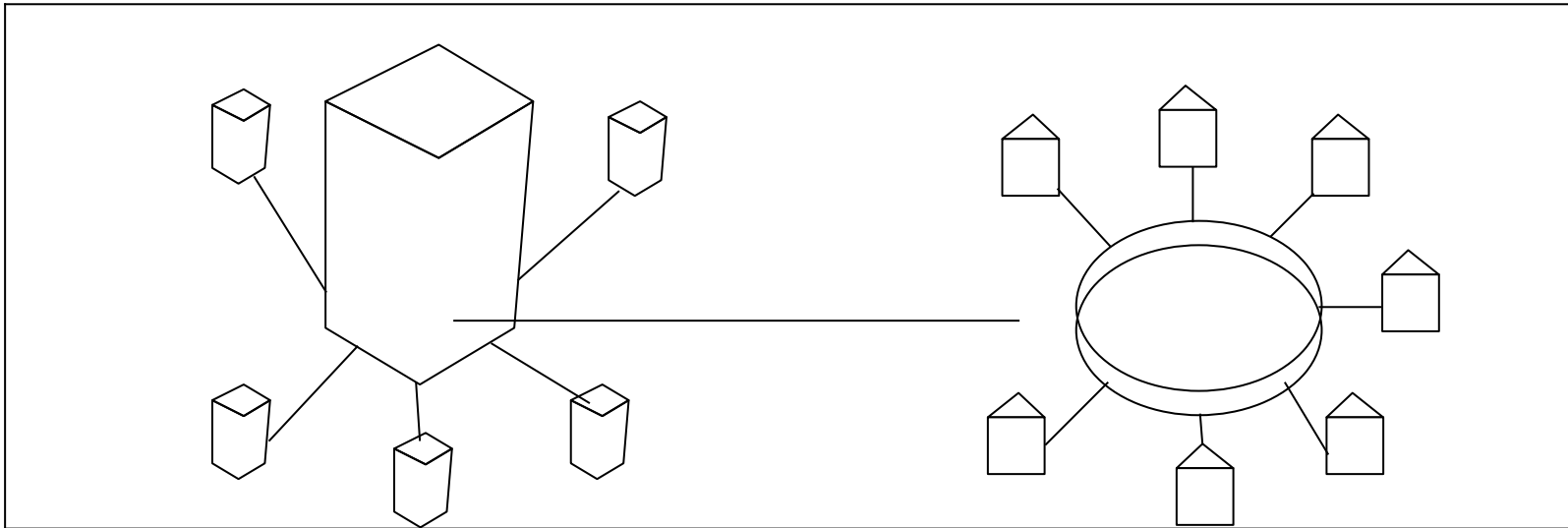
Component	Library	Description/notes	Clickable/ caption
		Figures (from left to right)	
Fig. 1		Person working on a computer.	
Fig. 2		Person standing using a fax machine.	
Fig. 3		Person seated at a desk talking on an ISDN telephone.	
Fig. 4		Person seated behind a desk with *a video camera in front of desk pointed at person.	

Topic: Digital Communication
Storyboard number: 07-02-04-020C
Screen type: Content

Layout: 1
Level:

Why should the world switch to digital telecommunication?

Private switched and switched digital dial-up service that integrates voice and data communication over a single line have been around for a while. What ISDN standards promotes is universal connectivity and service availability.



Screen graphics for 07-02-04-020C:

Component	Library	Description/notes	Clickable/ caption
Network		Same graphic as 07-02-04-000C except no labels at top of graphic and business building is connected to the ISDN network as all the small businesses and homes.	

Topic: Digital Communication
Storyboard number: 07-02-04-025E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

How is ISDN flexible?

- Anyone can use it
- It can be found everywhere
- It can handle many types of communication
- ISDN lines are physically flexible

Correct answer: It can handle many types of communication

Feedback for 1st incorrect answer:

HINT: Whatever the source, a digital signal can travel over an ISDN line. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, ISDN is flexible because it can handle many types of communication—voice, data and video. ISDN is also flexible because subscribers can configure their service to suit their changing communication needs.

Feedback for correct answer:

That's right. ISDN is flexible because it can handle many types of communication—voice, data and video. ISDN is also flexible because subscribers can configure their service to suit their changing communication needs.

Topic: Digital Communication
Storyboard number: 07-02-04-030E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What types of digital dial-up service are there?

- Private Line and Private Switched
- Switched and Private Switched
- Digital and Analog
- ISDN and non-ISDN

Correct answer: Switched and Private Switched

Feedback for 1st incorrect answer:

HINT: The type of service is the same. One is public. The other is private. Please try again.

Feedback for 2nd incorrect answer:

Incorrect, the correct answer is Switch and Private Switch. Switched service uses the telcos switch and is limited in its configuration. The customer owns the switch with private switched service. Customers can configure private switched service to meet specific needs.

Feedback for correct answer:

That's right. Switched service uses the telcos switch and is limited in its configuration. The customer owns the switch with private switched service. Customers can configure private switched service to meet specific needs.

Topic: Digital Communication
Storyboard number: 07-02-04-035E
Screen type: Exercise

Layout: 1
Level:

MasteryPOINT

Click on the correct answer.

What purpose does ISDN Standards promote?

- Hardware Compatibility
- Software Compatibility
- Universal Connectivity
- Data Compatibility

Correct answer: Universal Connectivity

Feedback for 1st incorrect answer:

HINT: All equipment, networks and signals are compatible with ISDN. Please try again.

Feedback for 2nd incorrect answer:

Incorrect. The purpose ISDN standards promotes is universal connectivity and service availability.

Feedback for correct answer:

That's right. The purpose ISDN standards promotes is universal connectivity and service availability.

Topic:**Level:****Storyboard number: 07-02-00-000S****Screen type: Section summary**

You have completed the ISDN Basics section. In this section, you learned:

- The purpose of ISDN is to integrate voice, computer data, and video communications
- Technological and economic forces influenced the discussion and research for a digital telecommunications solution that provided universal connectivity
- ISDN standards are a set of rules which ensure compatibility of hardware and software manufactured for this digital network technology
- The ITU gathers input for ISDN standards from around the world. In the United States, ANSI provides input to the ITU
- Digital signals are comprised of on and off states. Having only two variables makes digital signals more efficient for switching and transmission equipment to handle.
- The need for digital data transfer has increase greatly in recent time, nearing a primary use of the PSTN and driving the demand for an integrated services digital network

If you are ready to move on to another section in this module, click on the Section Module button.